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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/539,079  | 06/15/2005  | Junichi Shimada      | 123989              | 9057             |
| 25944   | 7590        | 08/07/2007           | EXAMINER            |                  |
| OLIFF & BERRIDGE, PLC<br>P.O. BOX 19928<br>ALEXANDRIA, VA 22320 |             |                      |                     | LOUIE, WAI SING  |
| ART UNIT  |             | PAPER NUMBER         |                     |                  |
| 2814  |             |                      |                     |                  |
|   |             |                      | MAIL DATE           | DELIVERY MODE    |
|   |             |                      | 08/07/2007          | PAPER            |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/539,079             | SHIMADA ET AL.      |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Wai-Sing Louie         | 2814                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 29 May 2007.

2a) This action is **FINAL**.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-19 is/are pending in the application.

4a) Of the above claim(s) 1-6 and 12-15 is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 7-11 and 16-19 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Harrah et al. (US 6,498,355).

With regard to claim 7, Harrah et al. disclose a high flux LED array (col. 2, line 49 et seq. and fig. 2), comprising:

- A substrate 6 (col. 2, line 51 and fig. 2);
- A heat conducting layer 24 provided on the substrate 6 and made of an insulating material (col. 3, line 38 and fig. 2);
- A conductive layer 8 provided on the heat conducting layer 24 and having a predetermined pattern (col. 3, lines 5-7 and fig. 2);
- A light-emitting diode chip provided in a predetermined position on the conductive layer 8 (col. 3, lines 1-2 and fig. 2);
- A connector part 60 and 62 having a module thermally contacting portion for conveying heat from the substrate 6 and the heat conducting layer 24 and a power supply terminal 60 and 62, provided in an end portion of the substrate 6 (fig. 5).

With regard to claim 8, Harrah et al. disclose the heat-conducting layer is made of diamond (col. 3, line 38 and fig. 2).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harrah et al. (US 6,498,355) in view of Hunt et al. (US 6,836,014).

With regard to claims 9 and 16, Harrah et al. do not disclose a temperature sensor in the device. However, Hunt et al. disclose an optical device having a heat sink 130 in thermal contact with the optical device 140 (Hunt col. 3, lines 19-20) and a temperature sensor 160 locate on the die (Hunt col. 4, lines 30-31). Hunt et al. teach the temperature sensor could maintain an acceptable operating temperature to avoid any damage to the device (Hunt col. 1, lines 33-35). Therefore, it would have been obvious to one of ordinary skill in the art to modify Harrah's device with the teaching of Hunt et al. to provide a temperature sensor in order to maintain an acceptable operating temperature to avoid any damage to the device.

Claims 10-11 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harrah et al. (US 6,498,355) in view of Frutschy et al. (US 7,173,329).

With regard to claims 10-11 and 17-19, in addition to the limitations disclosed in claim 7 above, Harrah et al. also disclose:

- Harrah et al. do not disclose a socket for the LED module. However, Frutschy et al. disclose a pod 520, which is thermally contact with the thermal conducting portion 640 and a terminal 690 to the power supply (Frutschy col. 5, lines 37-58 and col. 6, 4-16). Frutschy et al. teach the pod connection provides a low resistance current path and heat removal from the substrate (Frutschy col. 5, lines 50-58). Thus, it would have been obvious at the time the invention was made to modify Harrah's device with the teaching of Frutschy et al. to provide a socket for the LED module in order to provide a low resistance current path and heat removal from the substrate.

#### *Response to Arguments*

Applicant's arguments filed 5/29/2007 have been fully considered but they are not persuasive.

- Applicant argues that Harrah et al. do not disclose the “heat conducting layer 24 provided on the substrate 6 and made of an insulating material” and the heat conducting layer 24 in Harrah et al. is merely a dielectric layer (page 6 of the Remarks). However, Harrah et al. disclose the heat conducting layer 24 is made of diamond filled epoxy (col. 3, lines 37-38), where epoxy is an insulating material and the diamond is a good thermal conductive material (col. 3, line 40). Therefore, Harrah et al. meet the claim limitation.

- Applicant argues that Harrah et al. disclose the substrate 6 is a metal substrate.

The claimed substrate is not to be electrically conductive. However, the present claim 7 does not specify the substrate is electrically non-conductive.

### *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is 571-272-1709. The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wai-Sing Louie/  
Primary Examiner, Art Unit 2814

Wsl  
August 3, 2007.